

SCHOOL LIFE

OFFICIAL JOURNAL OF THE * * * * *
OFFICE OF EDUCATION

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May 1956



IVORY TOWER?

The Office of Education is well aware of the danger that it might become isolated in its thinking and open to the charge often leveled at educators: "You live in an ivory tower."

To offset this danger, and to better discharge its obligation for national leadership in education, the Office has been increasing its consultation with outside groups.

Since May 1955 the Office has met with representatives of several national organizations—a fair cross section of professional and lay groups in America. The Office will continue to meet with such groups in the future. The purpose of these meetings is to discuss Office functions and to receive suggestions for improvement.

In the course of the discussions many helpful suggestions have been received and already are reflected in the planning and action of the Office. In considering these

suggestions, the Office has been governed by certain principles as to the services it should perform:

1. The Office must be objective. It must present evidence of accomplishments, of needs, of excesses, of possibilities.
2. The Office must have a comprehensive outlook. It must consider education as it affects all citizens of all ages.
3. The Office must direct its program to strengthen and improve the effectiveness of citizen understanding and support of education and to help the people increase the efficiency of all phases of education.
4. The Office must deal primarily with problems that are national in scope or implication.

The fourth principle does not mean that the Office might not deal with a local situation, but that it can justify doing so only when the local situation is typical of a national problem. The Office must be responsive to the majority of the people because the schools belong to the people and so does the Office of Education. Thus, as the Office tries to determine what may be most important at a given time, it recognizes that if there is good evidence that the public wants some service or material, the public is entitled to have that want filled.

By adhering to these principles and by constantly exchanging ideas with others, the Office of Education believes it can avoid ivory-tower thinking and bring its full forces to bear on the pressing problems of education wherever and whenever they arise.

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE MARION B. FOLSOM, *Secretary*

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EVENTS AND DEVELOPMENTS

of national significance

For Retarded Children

ON April 12 there was introduced in the United States Senate a bill to advance the cause of education for mentally retarded children. S. 3620, which was introduced by Mr. Hill for himself and others and subsequently referred to the Senate Committee on Labor and Public Welfare, would authorize the Commissioner of Education to make grants of funds to (1) public or other nonprofit institutions of higher learning and (2) State educational agencies.

Institutions of higher learning would use the grants to train professional personnel either to conduct research in the various fields of educating mentally retarded children or to train teachers in those fields. State agencies would use them for fellowships to train teachers of mentally retarded children or supervisors of such teachers.

Science Teachers on National Committee

WITH great logic the President has included a representative of the country's science teachers on his recently appointed National Committee for the Development of Scientists and Engineers. That representative is Robert Stollberg, president of the National Science Teachers Association.

Other representatives of education on the committee are Arthur S. Adams, president, American Council on Education; J. Lester Buford, president, National Education Association; Leland N. Drake, president, National Association of Secondary

School Principals; and Irvin Stewart, president, American Association of Land Grant Colleges and Universities. Howard L. Bevis, president of the Ohio State University, has been named chairman of the committee; Eric A. Walker, dean of the Engineering and Architectural College at Pennsylvania State College, is vice chairman.

The committee has been formed because, as the President says, "the basic responsibility for solution of the problem [how to get enough highly qualified scientists and engineers] lies in the concerted action of citizens and citizens' groups organized to act effectively." The other appointees, also representatives of major groups or organizations, will speak for engineering, science, the humanities, management, labor, and State and local governments.

Exhibit in Lima

FIFTEEN panels of exhibit showing what education is like in the United States were displayed at the three international education conferences held in Lima, Peru, during the last week of April and the first week of May.

The Office of Education and the United States Information Agency had prepared the exhibit. Using photographs and charts they showed the roles played in education by the local districts, the States, and the Federal Government; presented urban-rural differences and institutional and community participation in school life; showed various aspects of teacher training and other higher education; told how curriculums and procedures

were used to advance the learning process; and set forth statistics on enrollment.

Providing the setting for the exhibit were two meetings under the auspices of the Organization of American States—a conference of ministers of education from 21 Latin American nations and the second meeting of the Inter-American Cultural Council—and a conference called by UNESCO in an effort to solve the problem of providing education for 14 million Latin American children who are without schools.

Consultants in Vocational Education

FIVE consultants have come to the Office on a contract basis to give specialized service for a few months to the Division of Vocational Education.

First to arrive was W. F. Stewart, emeritus professor of agricultural education, The Ohio State University, who came on February 20 to advise on research in agricultural education for out-of-school young farmers. He will be here until the end of June.

Adrian Trimpe, State teacher trainer in distributive education at Western Michigan College, is assisting from March 5 to June 30 as an adviser on studies devoted particularly to training programs for outside selling.

Earl M. Bowler, assistant director of the industrial education department in the Division of Extension, University of Texas, is advising the Trade and Industrial Education Branch from April through June in the area of related instruction and supervisory training.

Beth Coghlan, director of distributive education for the Seattle Public Schools, came in mid-April to assist the Distributive Education Branch until the end of June on a special project of analyzing problems that attend training programs for managers and employees in small business establishments.

Katherine Reed, head of the Department of Family Life in the School of Home Economics, Oregon State College, is spending the month of May with the Home Economics Education Branch. She is advising on what steps should follow a conference held last year on the value that students in home economics gain from experience with infants.

Threefold Task

JUST after the President's Committee on Education Beyond the High School held its first meeting, on April 27, its chairman, Devereux Colt Josephs, summarized for the press the committee's threefold task:

"First, to collect, assemble and disseminate the best information we can for . . . increasing public awareness of the vast educational challenge . . . in the field of education beyond the high school.

"Second, to encourage . . . the planning and action . . . by institutions and groups of institutions . . . to meet the impending demands upon our educational system.

"Third, to advise the President . . . in this field and to recommend appropriate Federal policies and relationships."

That the Office of Education, as well as the entire Department of Health, Education, and Welfare, is ready to give the new committee every encouragement and support for its task was expressed at this first meeting by Secretary Folsom, Under Secretary Hunt, and Commissioner Brownell.

In addition to Chairman Josephs, who is head of the board of directors of the New York Life Insurance Co., and Vice Chairman David Dodds Henry, who is president of the University of Illinois, the President's

Committee has 31 members. They are representative leaders in our society. Nine are presidents of institutions of higher learning. At least seven others also are directly connected with education in a professional capacity—either as college dean or professor, chief State school officer, superintendent of a public school system, or director of education for a labor organization; at least one is chairman of a city's school board. Others are a State governor, an artist, publishers, lawyers, industrialists, financiers, and leaders in the fields of agriculture and labor.

" . . . for Children in 1956"

SIXTY-TWO organizations sent delegates to the ninth annual conference on elementary education sponsored by the Office of Education, May 7-9. About half of them were professional educational organizations; half were lay. Their common bond was their interest in some aspect of the education of children.

General purpose of the Office in bringing these organizations together each year is to give them an opportunity at the national level to discuss ways of working together for better educational programs for children.

Specific purpose for this year's conference, reflected in the theme "Working Together for Children in 1956," was to develop suggestions useful to all organizations and to consider how the organizations could help to implement the recommendations of the White House Conference.

The conferees centered their discussions on three questions:

¶What do national organizations see as the major job of the school today?

¶How can good human relations contribute to the achievement of the goals of the schools?

¶How can national organizations help build public interest and support to provide better education for the children in our schools?

To give the represented organizations something they can use in planning their forthcoming activities for

children, the conference summarized its discussions into a working statement.

CCSSO Planners Meet With Office Staff

UPON invitation from the Office of Education, nine representatives of State departments of education from all parts of the country came to Washington this month to join Office staff in a planning session. They were the Planning Committee of the Study Commission of the Council of Chief State School Officers.

Basic reason for the meeting, which was held on May 21-22, was to discuss the research problems that are of common interest in State school administration and, in so doing, to give guidance to the Office in planning its own program of projects and studies.

The meeting chalked up the following accomplishments:

¶Plans were made for the completion of the four studies the Office is now carrying on for the Council on the responsibilities of State departments of education for (1) pupil transportation, (2) school plant services, (3) guidance services, and (4) instructional program.

¶Plans were made to initiate further studies into State department responsibilities—this time for non-public schools and for finance and business administration.

¶Plans were made for the eighth annual workshop to be held by the Study Commission, in Colorado Springs, Colo., during the week of November 24.

Most of the members of the present Planning Committee are assistant State commissioners or superintendents of education. Those who attended this year's meeting were M. M. Craft, Illinois; Donald A. Emerson, Oregon; J. E. Miller, North Carolina; W. Fred Miller, Arizona; Jack Milligan, Michigan; Ray E. Reid, Virginia; William P. Robinson, Rhode Island; James C. Schooler, South Dakota; and Burtis E. Taylor, Colorado.

Tackling the Manpower Shortage

To join in the job the Office cooperates with other agencies * makes its own studies * gives consultative services

THREE PRINCIPLES . . .

I WANT to give you my assurances . . . that the United States Office of Education is cooperating with many individuals and groups . . . toward a solution to what has become known as the "science shortage." In its activities it is proceeding on the basis of three principles . . .

First, the situation with regard to science education in our schools, particularly as it relates to national defense needs, is a grave one.

Second, this situation is not so grave that we should allow ourselves to become panic stricken and resort to short-term solutions to our problems which might in the long run jeopardize the very foundations of our educational system. Progress in science education and education of scientists is very largely dependent upon the development of strength in education generally.

Third, the solution to the problem of scientific manpower calls for constructive, planned, careful, continuous programs over the years. It is not just a matter of exposing more pupils to more hours of sitting in science classrooms. It involves the preparation of elementary school teachers who can gain and sustain interest of children in quantitative thinking and concern of natural phenomena so that when they reach the secondary school their interest in mathematics and science has been increased—not diminished—by elementary school experience. It involves opportunities in the high school for rewarding and challenging tasks in science and math-

ematics that build confidence and desire to go on to the next and more advanced possibilities, as well as mathematical and scientific competence. It involves college recognition and encouragement of scientific potential, willingness to make the individual adaptations to some less well prepared but potentially able, and opportunities to permit those of talent and well-developed competencies to forge ahead at full speed. It involves the extremely difficult changing of a widespread, long-developed impression by many parents and students that mathematics and science are somehow especially tough and are subjects more for men than for women. We know that competence in any advanced field of learning requires rigorous and exact thinking. We know that women are just as able as men in their learning capacity.

The steps to bring about improved science education now, and over the years ahead, need endorsement . . . not by any single group or element in our society but by educators and lay citizens everywhere. The ultimate success of education generally and scientific education particularly depends upon better understanding and appreciation and greater support by the people than at present. The encouraging fact is that we can observe increases in this understanding and support on every hand.

From remarks by the U. S. Commissioner of Education to a session of the National Science Teachers Association, in Washington, D. C., March 16, 1956.

FEW developments in recent years have had such vast implications for American education as the growing public concern over existing shortages of technically trained manpower. Reports that Russia is producing ever-increasing numbers of scientists and engineers have come as a shock to many Americans—despite the fact that for some thirty years Russia has been announcing its policy of industrialization—and have caused a

marked increase in the technical and scientific education programs in this country.

To many educators, such as Henry H. Armsby, chief for engineering education in the Office of Education, this is a belated public acknowledgment of a problem area which long has been recognized by specialists in the field. It was Dr. Armsby who in 1950, in the face of an advertised surplus of American engineers, pointed to

shrinking freshman enrollments and rising technological demands, and forecast a *shortage* of engineers. The outbreak of hostilities in Korea later in that year hastened this prophecy to fulfillment, and United States industry ever since has been hindered by a supply of engineers unequal to the demands of a burgeoning economy.

Because those who are close to this problem of technical and scientific

shortage have been at work on it for several years, and because a public aroused by the threat of Soviet technical supremacy is calling for remedial action, an air of feverish activity surrounds this professional area.

Central to any consideration of this manpower problem is education. The chief factor in the expansion of our trained manpower supply is, of course, our capacity for training, our facilities for education. For this reason, heavy responsibility devolves upon education to consider the needs created by a marked acceleration of technical and scientific advances.

To the Office of Education, as to educators everywhere, the scientific manpower shortage is chiefly a problem to be solved in an educational context. It is a problem of almost indeterminable proportions, complicated by a short supply of science and mathematics teachers and deeply involved with the need for improving teacher qualifications, curriculums, methods of instruction, facilities, and equipment. Not until we have improved these factors can we make enough of an impact to alleviate the shortage to any substantial degree.

For the improvement of these factors the Office has long been expending its effort. It has employed a specialist for engineering education since 1941, one for science since 1946, and one for mathematics since 1952. Over the years these specialists have made a number of studies, written many reports, and served in various consultative and representative capacities to improve the status of education in their respective fields.

To keep abreast of rapid developments in the scientific manpower field, and to publicize these developments in the interests of better coordination of all activities pertaining to the problem, Commissioner of Education Brownell has mobilized an informal Office of Education "task force." Under the personal direction of the Commissioner, a team of Office specialists is working to organize and disseminate data which will acquaint

the public and educators alike with educational developments pertinent to the manpower crisis, with educational problems inherent in that crisis, and with possible solutions. Among the members of this team are J. Ralph Rackley, deputy commissioner; Homer D. Babbidge, Jr., assistant to the commissioner; Henry H. Armsby, chief for engineering education; Kenneth E. Brown, specialist for mathematics; and Ellsworth S. Obourn, specialist for science.

School Life hopes to present in future issues some of the findings of this Office group in order to keep its readers informed of the fast-breaking developments in science, mathematics, and engineering education. As an introduction to those reports, we present here some highlights of Office activities.

Work With Other Agencies

Cooperation with other agencies interested in alleviating the shortage of scientists has been part of the Office's basic approach to the problem. The following will suggest the extent of this cooperation:

In the spring of 1951 the Office made a study at the request of the Engineering Manpower Commission (established by the Engineers Joint Council in 1950 to make recommendations to the Manpower Office of the National Security Resources Board). Purpose of the study: To determine how many engineering graduates would be available for industrial employment in each of the next 5 or 6 years.

On November 16, 1951, the Office sponsored a conference on the manpower shortage that was attended by more than 100 educators and representatives of industry, Government agencies, and science societies.

On November 13-15, 1952, the Office joined with the Cooperative Committee on the Teaching of Science and Mathematics of the American Association for the Advancement of Science to hold a conference of more than 100 educators. Participants pooled their ideas on how to identify and provide for pupils with potential in science and mathematics and published a pamphlet, *The Talented in Mathematics and Science*, which is available from the Government Printing Office. To date more than 12,000 copies have been sold—encouraging evidence of interest in the subject.

Since May 1953 the Office has had a representative on the Committee on Specialized Personnel of the Office of Defense Mobilization, a committee that has provided opportunities for many organizations and agencies to make their views known to Federal officials.

Since 1954, the Office has had a representative on a special interdepartmental committee on the training of scientists and engineers. Chief function of the committee: To make recommendations to the President.

On December 15-16, 1955, the Office and the National Science Foundation jointly sponsored meetings to which they invited representatives of the American Association for the Advancement of Science and the American Association of Colleges for Teacher Education. Chief purpose: To discuss ways in which the two guest groups could more effectively supplement each other in meeting the shortage of trained personnel.

On January 17, 1956, the Office initiated a program of monthly meetings that now brings together representatives of 12 Government agencies and national organizations to exchange current information on developments in the manpower shortage.

Studies

Some of the Office studies on education in science and mathematics are of the continuing kind, made year after year; others are special, to fill an immediate need. Their nature is indicated by the following reports on studies recently completed:

Earned Degrees Conferred by Higher Educational Institutions, 1954-55 (Circular No. 461), by Mabel C. Rice and Neva A. Carlson, is the latest in a regular Office series. The series furnishes the basic statistics used by nearly every agency concerned with present and future supply of professional and scientific personnel.

Engineering Enrollments and Degrees, 1955 (Circular No. 468) by William A. Jaracz and Henry H. Armsby, is the seventh in a series of annual reports published by the Office. Data are gathered jointly by the Office and the American Society for Engineering Education. Among the users of these reports is the Special Surveys Committee of the Engineers Joint Council, which makes them the bases for its annual estimates of supply.

Offerings and Enrollments in Science and Mathematics in Public High Schools, 1954-55, by Kenneth E. Brown, reports on a sample study of 10 percent of the 23,745 public secondary schools in the United States. It is now in press and will be available in June; copies may be had from the

continued on page 14

in the Right Direction

a look at public-school libraries in the 5 largest cities in the United States shows promising developments

IF WHAT goes on, public-school librarywise, in the 5 United States cities with a population of more than 1 million—New York, Chicago, Los Angeles, Philadelphia, and Detroit—is representative of what goes on throughout the rest of the country, then the school library of today is functioning more and more as an integral part of the school.

Nora E. Beust, Office of Education specialist for school and children's libraries, has paused long enough in her work on the Office's statistical study of United States public-school libraries for 1953-54* to pick up that group of cities to examine. And she finds that more or less, in one way or another, all of them are moving toward the ideal situation—a situation where the library is considered vital to the learning process and made a center for many kinds of teaching materials instead of for books alone, where centralized libraries and trained librarians are provided not only for secondary but also for elementary schools, where the library organization is given divisional status in the school system, and where the time-consuming tasks of ordering and cataloging books are taken over for all libraries by a central office.

THE TREND toward the library as a materials center is pointed up in Los Angeles' plans for its new junior and senior high schools, where the audio-visual and textbook rooms

are placed right next to the library. This arrangement provides a one-stop service for the teachers and permits supervision of those rooms by the librarian. New York, too, reports its emphasis on the library as a "communications center . . . to house and service audio-visual materials as well as books, magazines, and pamphlets."

CENTRALIZED LIBRARIES were reported for all of the 410 high schools in the 5 cities during 1953-54.

Elementary schools did not fare quite so well, naturally: only in recent years has the elementary school seen its classroom collections organized and administered as an integral part of the book collection of the centralized library. But most of the 1,689 elementary schools fared well nevertheless, receiving these kinds of library service:

	Percent receiving the service
Centralized libraries.....	65.9
Classroom collections only.....	26.0
Some other kind of service.....	1.6
No service in the building.....	6.5

As an example of the movement toward centralized libraries for elementary schools, Miss Beust points to Los Angeles, where an extensive school-building program is under way. There libraries are included in the architect's plans for all elementary school buildings. In the past 3 years, 67 of these buildings have been completed. Even before the building program began, about 75 elementary schools had converted classrooms into libraries. That leaves 250 of the city's elementary schools still chiefly dependent on classroom collections, but these have frequent exchange of books through the school system's library and textbook division.

New York, which in 1953-54 had 437 centralized libraries and 13,177 classroom libraries in the elementary schools, constantly uses its central collection to refresh the classroom libraries. It thus gives students a wide selection of materials.

PROFESSIONAL LIBRARIANS serve all of the high school libraries. Judging by data that she has at hand, Miss Beust says that three of the cities apparently employ more than one librarian in their large high schools.

In elementary schools only two cities—Chicago and Detroit—employed professional librarians in 1953-54. Chicago in 1936 began a training program for elementary school librarians, and its program calls for fully trained teacher-librarians eventually in all elementary schools. Philadelphia listed among its unmet needs, librarians in the elementary schools. New York had no library positions in its elementary schools and used various patterns of administration.

Most of the cities made up for their lack of professional librarians by training the teachers to give library service. Los Angeles provides elementary teachers with in-service training courses of 16 hours each in children's literature and in library administration and use. A library manual has just been completed to aid them. Philadelphia is working on a program to demonstrate to the staff what the library can do to enrich teaching and how its facilities may be utilized more satisfactorily.

All together the 5 cities manned their 1,536 centralized libraries with 914 trained librarians working more than half-time and with 90 librarians working less than half-time.

*This study will appear as chapter 6 in the *Biennial Survey of Education in the United States, 1953-54*, currently in preparation in the Office by the Services to Libraries Section and the Research and Statistical Services Branch. The last time public libraries were included in the *Biennial Survey* was in 1948-49.

PUBLIC SCHOOL ENROLLMENT BY GRADES

REGION AND STATE	TOTAL	ELEMENTARY					
		Total	Kindergarten	First grade	Second grade	Third grade	Fourth grade
Continental U. S.	28,836,052	22,545,807	1,474,007	3,666,466	2,940,285	2,569,243	2,565,345
NORTHEAST	6,281,139	4,826,898	472,334	721,505	611,455	527,320	531,884
Connecticut	348,700	279,592	32,508	42,909	36,790	29,851	29,573
Maine	169,364	135,086	15,512	19,820	15,323	14,209	14,661
Massachusetts	710,551	540,817	41,702	83,571	75,024	59,080	59,599
New Hampshire	82,778	63,525	3,449	10,432	8,441	6,901	6,925
New Jersey	793,782	623,193	83,721	90,491	77,932	66,243	64,431
New York	2,302,815	1,776,332	199,826	259,018	235,247	189,859	187,372
Pennsylvania	1,698,688	1,268,158	86,016	187,890	145,002	146,023	154,191
Rhode Island	110,674	90,066	8,120	19,490	11,084	9,258	9,093
Vermont	63,787	50,129	1,480	7,884	6,612	5,896	6,039
NORTH CENTRAL	8,135,312	6,256,060	620,535	986,224	785,276	672,761	667,868
Illinois	1,363,260	1,043,680	109,766	169,218	129,163	109,593	111,165
Indiana	812,210	626,659	40,000	102,812	81,699	69,975	70,031
Iowa	522,954	399,477	43,139	68,984	46,385	41,760	41,724
Kansas	407,343	313,812	29,021	49,097	40,836	34,170	34,748
Michigan	1,240,730	975,375	141,520	146,181	117,405	98,404	97,751
Minnesota	552,123	413,553	41,730	61,129	51,983	44,045	44,561
Missouri	703,667	548,852	32,176	88,485	71,395	62,560	61,473
Nebraska	249,920	188,904	26,107	27,989	22,800	20,264	20,068
North Dakota	123,174	94,512	1,632	14,757	12,688	11,497	11,487
Ohio	1,474,046	1,145,476	96,904	183,799	149,300	125,355	120,779
South Dakota	128,439	97,884	5,056	14,440	13,198	11,523	11,550
Wisconsin	557,446	407,876	53,484	59,333	49,024	43,615	42,531
SOUTH	10,279,268	8,227,117	86,995	1,465,042	1,121,310	1,007,170	1,002,493
Alabama	703,647	563,242		99,976	74,248	68,404	65,404
Arkansas	414,955	328,991		58,156	45,235	39,963	40,218
Delaware	57,205	44,840	865	7,556	6,252	5,384	5,300
Florida	628,477	498,367	3,455	82,907	72,237	62,453	62,534
Georgia	807,631	666,507	9,230	119,780	94,108	82,985	82,384
Kentucky	591,568	483,536	7,373	85,949	68,647	56,782	55,567
Louisiana	552,491	443,264	5,712	74,175	62,642	55,209	54,991
Maryland	428,292	343,652	17,964	54,859	46,762	41,317	39,637
Mississippi	527,408	438,607		104,076	57,468	52,816	52,454
North Carolina	968,066	761,599		129,530	100,822	94,501	94,697
Oklahoma	483,100	363,683	11,949	56,879	46,228	41,465	42,787
South Carolina	539,437	445,496		82,280	62,147	56,510	56,118
Tennessee	716,295	575,024		100,352	79,116	68,741	69,656
Texas	1,604,293	1,268,889	12,759	235,741	169,467	158,836	158,043
Virginia	695,277	564,945	7,078	98,712	76,838	71,543	72,986
West Virginia	451,991	350,924		60,486	48,081	40,883	41,103
District of Columbia	109,135	85,551	10,610	13,628	11,012	9,378	8,614
WEST	4,140,333	3,235,732	294,143	493,695	422,244	361,992	363,100
Arizona	197,535	157,999	4,828	28,751	20,956	18,741	18,618
California	2,139,806	1,687,730	210,984	237,705	220,671	183,269	183,231
Colorado	288,954	225,870	18,609	35,770	29,347	24,944	25,349
Idaho	136,376	101,613		16,869	13,025	12,376	12,500
Montana	118,475	89,599	2,364	14,648	11,652	10,421	10,613
Nevada	43,608	34,847	3,227	6,031	4,403	3,784	3,942
New Mexico	173,268	138,155	6,749	21,595	18,904	16,530	16,535
Oregon	312,564	236,745	9,016	38,945	31,235	27,316	27,375
Utah	183,164	138,909	10,465	21,911	16,473	15,499	15,986
Washington	478,312	371,444	24,064	62,707	49,130	43,130	42,826
Wyoming	68,271	52,821	3,837	8,763	6,448	5,982	6,125
Outlying parts of U. S.							
Alaska	27,676	23,808	1,812	4,578	3,533	2,908	2,812
American Samoa	5,082	4,710		1,062	902	783	599
Canal Zone	11,887	9,783	931	1,663	1,441	1,262	1,145
Guam	10,205	8,526		2,344	1,330	917	864
Puerto Rico	505,151	447,904		87,062	76,539	67,936	62,806

					SECONDARY					
	Fifth grade	Sixth grade	Seventh grade	Eighth grade	Total	First year	Second year	Third year	Fourth year	Post-graduate
345	606,983	2,449,174	2,242,116	2,032,188	6,290,245	1,944,357	1,716,758	1,411,722	1,190,138	27,270
884	543,035	520,741	473,400	425,224	1,454,241	439,610	396,678	332,230	282,152	3,571
573	31,774	30,010	24,444	21,733	69,108	20,892	18,821	15,880	13,417	98
661	15,456	14,379	13,329	12,397	34,278	10,635	9,000	7,829	6,768	46
599	61,986	59,524	53,136	47,195	169,734	50,455	45,383	39,150	33,889	857
925	7,409	7,160	6,667	6,141	19,253	5,848	5,074	4,442	3,829	60
431	67,417	65,813	57,073	50,072	170,589	52,305	46,014	38,591	33,577	102
372	190,544	193,663	171,567	149,236	526,483	159,017	145,707	120,843	98,765	2,151
191	153,170	135,811	133,703	126,352	430,530	130,255	117,473	97,996	84,605	201
093	9,260	8,684	8,057	7,020	20,608	6,043	5,657	4,437	4,471	.....
039	6,019	5,697	5,424	5,078	13,658	4,160	3,549	3,062	2,831	56
868	692,392	661,147	607,954	561,903	1,879,252	555,684	505,764	425,242	370,886	21,676
165	115,976	110,779	98,006	90,014	319,580	93,077	85,757	70,830	59,863	10,053
031	71,473	68,237	63,934	58,498	185,551	56,711	51,121	41,408	36,311	.....
724	42,318	40,630	38,153	36,384	123,477	35,259	32,817	28,887	26,272	242
748	34,908	32,911	29,958	28,163	93,531	26,892	25,017	21,770	19,852	.....
751	104,048	99,082	89,217	81,767	265,355	78,336	70,748	56,669	49,507	10,093
561	46,199	44,807	40,593	38,506	138,570	39,814	37,027	32,513	28,619	597
473	64,770	59,744	57,467	50,782	154,815	48,721	40,490	35,544	30,060	.....
068	18,950	19,240	17,193	16,893	61,016	17,559	16,033	14,499	12,925	.....
487	11,514	10,799	10,266	9,872	28,662	8,373	7,493	6,677	6,119	.....
779	126,971	122,496	114,769	105,103	328,570	100,229	91,190	74,073	63,078	.....
550	11,634	10,828	10,033	9,622	30,555	8,530	8,115	7,219	6,626	65
331	43,631	41,594	38,365	36,299	149,570	42,181	39,956	35,153	31,654	626
193	1,009,256	925,644	852,641	756,566	2,052,151	670,839	563,792	447,057	369,314	1,149
104	76,319	64,619	61,242	53,030	140,405	46,552	38,749	30,870	24,234	.....
118	39,960	37,642	35,920	31,897	85,964	27,503	23,696	19,023	15,742	.....
100	5,305	5,253	4,785	4,140	12,365	3,775	3,442	2,897	2,251	.....
34	60,941	56,010	51,607	46,223	130,110	41,433	36,856	28,691	23,130	.....
84	81,476	73,287	65,230	58,027	141,124	48,616	39,108	29,532	23,868	.....
67	58,280	54,612	50,666	45,660	108,032	36,565	29,940	22,721	18,806	.....
91	53,868	50,055	46,005	40,607	109,227	37,338	29,733	22,727	18,393	1,036
37	40,773	37,531	34,047	30,762	84,640	27,349	23,827	18,347	15,098	19
54	50,045	45,073	40,877	35,798	88,801	29,757	24,350	19,174	15,520	.....
97	96,794	88,128	82,635	74,492	206,467	67,256	55,964	45,170	37,991	86
87	43,103	41,939	41,243	38,090	119,417	35,799	32,507	27,705	23,406	.....
18	54,900	49,841	44,523	39,177	93,941	31,097	25,854	20,506	16,484	.....
56	71,571	67,236	62,564	55,788	141,271	47,089	38,614	30,421	25,147	.....
43	152,341	137,945	127,422	116,335	335,404	107,778	91,520	73,486	62,620	.....
86	72,860	65,737	56,113	43,078	130,332	44,028	34,945	28,067	23,292	.....
03	42,099	42,261	39,747	36,264	101,067	32,183	27,571	22,632	18,681	.....
14	8,621	8,475	8,015	7,198	23,584	6,721	7,116	5,088	4,651	8
00	362,300	341,642	308,121	288,495	904,601	278,224	250,524	207,193	167,786	874
18	18,447	17,260	15,734	14,664	39,536	13,075	10,721	8,612	6,687	441
31	180,677	173,696	154,391	143,106	452,076	141,276	126,211	102,849	81,740	.....
19	25,341	23,727	22,250	20,533	63,084	19,345	17,409	14,273	12,048	9
00	12,834	11,883	11,231	10,895	34,763	10,157	9,463	8,215	6,928	.....
3	10,780	10,226	9,724	9,171	28,876	8,682	7,674	6,742	5,778	.....
32	3,779	3,635	3,200	2,846	8,761	2,863	2,435	1,922	1,523	18
15	16,265	14,933	14,038	12,606	35,113	11,490	10,040	7,746	5,837	.....
55	28,685	26,682	24,087	23,404	75,819	22,701	20,860	17,646	14,612	.....
16	16,440	15,131	13,702	13,302	44,255	12,540	12,227	10,524	8,933	31
6	42,960	38,787	34,663	33,177	106,868	31,404	29,332	25,186	20,627	319
5	6,092	5,682	5,101	4,791	15,450	4,691	4,152	3,478	3,073	56
2	2,652	2,208	1,782	1,523	3,868	1,292	1,089	841	646	.....
9	431	368	332	233	372	201	101	48	20	2
5	999	873	752	717	2,104	647	584	497	376	.....
4	855	805	712	699	1,679	622	510	343	204	.....
6	50,957	41,828	33,849	26,927	57,247	21,175	16,314	11,313	8,445	.....

Proposals of FEDERAL AID to COLLEGE STUDENTS

Brief descriptions of 32 bills
introduced in the 84th Congress

THE present Congress already has entertained more proposals for providing scholarships and student aid than any other Congress in recent years.

So far, none of these proposals have reached the hearing stage or been reported out of committee; but by their very number and nature they indicate a public concern over the current shortage of trained manpower, particularly in scientific and technical fields, as well as various opinions on what the Federal Government might do to alleviate it.

From bill to bill the variations are considerable. Size of the grant or loan runs from fairly small sums up to as much as \$2,000 a year. Eligibility in some bills is restricted to a certain group such as Indian high school graduates or children of deceased World War II veterans, and in others is extended to any graduate of an accredited high school. How eligibility would be determined, how long the aid program should run, who should administer it—these and many other questions find proposed resolution in a number of ways.

Briefly we present here the main points of each of the principal bills introduced into the 84th Congress up until the recess of April 1956. Our summary is a condensed version of one prepared by Ward Stewart, assistant commissioner of education. Dr. Stewart's article appears in this month's issue of *Higher Education*.

LOAN BILLS

Six bills in the House of Representatives (H. R. 33; H. R. 355, H. R. 7846, H. R. 8916, H. R. 8998, H. R. 9658) are named "Federal Scholar-

ship Act"; actually they are loan bills only.

H. R. 33 (*Boland*) would set up a revolving fund (\$10 million the first year and "such amounts as necessary" thereafter) from which a high school graduate could borrow, without interest, \$1,000 a year for undergraduate study and \$1,500 a year for graduate. He would have 10 years to pay it back. The United States Commissioner of Education, together with a legislatively designated agency in each State, would administer the program. In each State the amount loaned would be closely proportionate to the State's representation in the House; and each year the State would contribute up to 10 percent of its previous year's advances to sustain the revolving fund.

H. R. 355 (*Donohue*) is identical with H. R. 33. H. R. 7846 (*Multer*) differs from both by making the initial authorization \$5 million instead of \$10 million and by requiring 1-percent interest. Substantially similar to one or the other of these are H. R. 8916 (*Rodino*), H. R. 8998 (*Roosevelt*), and H. R. 9658 (*Perkins*).

The *College Students Loan Bill* (H. R. 6304, *Poage*) would lend up to \$1,500 a year to a student to help him pursue either undergraduate or graduate courses in any field whatever at an accredited college or university. He would repay in 5 annual installments, beginning on the fifth anniversary of the loan, and after the first payment would pay 3-percent interest on the outstanding balance.

The Senate has a loan bill too—S. 296 (*Langer*). It would establish a revolving fund of \$50 million, from which the Commissioner of Education

could lend up to \$1,000 to anyone who had a high school education or its equivalent and who wished to get vocational, technical, academic, or professional education beyond the high school level. Applicants would be required to show need. The loans would require promissory notes maturing in 15 years and bearing 1-percent interest.

At least three of the bills that are considered in the next section as "grant bills" also carry some loan provisions—H. R. 2211, H. R. 5422, and H. R. 8779.

GRANT BILLS

For Students in General

The *Student Aid Bill of 1955* (H. R. 2211, *Thompson*) and the identical H. R. 5422 (*Elliott*) would give high school graduates scholarships worth up to \$800 a year. For the first year the appropriation would be \$32 million; in each of the next 3 years it would be raised by another \$32 million until in the fourth and each subsequent year \$128 million would be authorized—enough to give scholarships to an estimated 160,000 students.

Scholarships would be distributed among the States on the basis of a formula that would take into consideration each State's share of (1) the Nation's population graduating from high school and (2) the Nation's population of 18-to-21-year-olds. Candidates would take tests prescribed by the Commissioner of Education; from among those who passed, a commission in each State would select the winners. The stipend would be adjusted to the student's financial need and would be continued while the student was in

good standing but not more than 4 years or beyond his first academic degree.

Scholarship holders would be permitted to attend any recognized institution of higher education in the United States and to take up any field of study; but in time of national emergency the President could designate that 60 percent of the scholarships be used in fields related to national defense.

Another feature of these two bills is that a grantee could borrow up to \$600 a year to help defray his expenses. He would repay between the 4th and 10th years after leaving college, paying also the insurance premium on the loan (unpaid balances would be U. S. insured, with U. S. liability limited to 80 percent) and interest at 1 percent above the going Treasury rate. For these loans an initial insurance fund of \$500,000 would be authorized; the principal amount of new loans insured in any year would be limited to \$10 million.

Administration of the bill would be the responsibility of the Commissioner of Education, who would appoint a council of 12 to advise him.

A bill similar to these two in many ways is *The Student Assistance Act of 1956* (H. R. 8779, *Frelinghuysen*). It does not specify the size of the appropriation, however. Nor does it specify the number and size of the scholarships; this matter it would leave to the Commissioner of Education. Also left to the Commissioner's discretion is the size of the loans, as well as whether assistance should be available for study at institutions outside the United States. Repayment of loans would include interest at $2\frac{1}{2}$ percent plus a loan-insurance premium (maximum: $\frac{1}{2}$ of 1 percent) to the Commissioner, whose liability on the loans would be limited to 80 percent of the unpaid balance. In time of emergency the President could authorize that *some or all* stipends be paid only to students in fields related to national defense.

The Educational Scholarship Bill of 1955 (H. R. 7839, *Davidson*)

would make monthly payments to 499 students (10 from each State; 5 each from Alaska, Hawaii, and Puerto Rico; and 2 each from the Canal Zone and the Virgin Islands) on the basis of the number of their dependents: \$100 for none, \$135 for 1, and \$160 for more than 1. Grantees would be selected partly on the basis of their scores in an annual competitive examination to be given by the Educational Testing Service of Princeton, N. J., and partly on the basis of their financial need. A scholarship could be used at a land-grant college or any other accredited college or university designated by the Commissioner of Education and could be continued through college and into graduate work as long as the student's progress was satisfactory. The program would be administered by the Commissioner of Education.

For Medical and Dental Students

H. R. 67 (*Bennett*) would pay all education expenses plus \$133 per month to students in approved medical and dental schools who would agree to serve, upon graduation, as doctors and dentists in the Armed Forces for as many years as they received school aid under the program. To become a beneficiary a student would have to be recommended by the dean of his school. The program would be administered by the Secretary of Defense.

Identical to H. R. 67 is S. 1444 (*Russell*). Similar is H. R. 4645 (*Bennett*), which differs only in certain provisions about administration of the program.

For Science Students

Two identical bills, H. R. 286 (*Osmers*) and S. 980 (*Cotton*), are both entitled *Defense Scholarships Act of 1955*. They would pay educational expenses up to \$1,000 a year for students who, in a competitive examination conducted at least once a year in each Congressional District by the United States Commissioner of Education, showed aptitude in engineering, physics, chemistry, and related sciences. Those

found eligible would be given scholarships only for those fields of study and only at institutions recognized by the Commissioner as proficient in science education. Scholarships would be awarded for 1 year, renewable if warranted; payment would be made directly to the institution.

The National Defense Scientific Education Bill (H. R. 2179, *Powell*), which would run for 7 years after enactment, would give annual scholarships up to \$2,000 a year for educational expenses of college students of scientific subjects at both graduate and undergraduate levels, but only in institutions approved by the Commissioner of Education for proficiency in science education.

To qualify, a student would first have to pass a competitive examination given annually to high school graduates in each State and then be selected by one of the members of Congress from his State (each member of Congress would select 50 persons). Although a scholarship would be for only 1 year, it could be renewed each year for a student who had made satisfactory progress. Payments would be made directly to the educational institution. In administering the program, the Commissioner of Education would be advised by a 12-member commission appointed by the President, the Vice-President, and the Speaker of the House.

Similar to H. R. 2179 is H. R. 6176 (*Powell*), which in addition would require that financial need of the student be considered in determining the amount of the scholarship.

H. R. 3695 (*Patterson*) would amend the Atomic Energy Act of 1954 to provide 537 research scholarships for either undergraduate or graduate study in the sciences related to atomic energy. Each Senator, Representative, and Territorial Delegate in the Congress would nominate a recipient from his constituency, as would the Resident Commissioner of Puerto Rico and the Governor of the Panama Canal Zone; the Commissioners of the District of Columbia would nominate

two. The bill does not specify definite amounts but says that payments would include a set sum for tuition and living expenses and a sum for the institution for overhead expenses. Recipients could fulfill their Selective Service obligation at the rate of $\frac{1}{2}$ day to 1 by continuing research after their scholarship had ended.

For Children of Veterans

H. R. 713 (Mrs. Rogers) would grant \$500 a year for education beyond high school to any child of a member of the Armed Forces during World War II or the Korean conflict who had died either in service or as a result of a service-connected disability. The grantee would be required to begin his course before he reached his 21st birthday and could remain a grantee for no more than 4 years. Although the bill does not specify, the program presumably would be in charge of the Veterans Administration.

Another bill to benefit the same segment of the population is the *War Orphans' Educational Assistance Act of 1956* (H. R. 9824, Teague). It would limit assistance to 36 months and in general would require the recipient to be 18 to 23 years old. Allowances would be for study in any institution furnishing education at the secondary-school level or above and would consist of \$110 a month for full-time study, \$80 for three-quarter-time, and \$50 for half-time. Payments would be made to meet, in part, such costs as subsistence, tuition, fees, supplies, books, and equipment. This program, too, would be under the Veterans Administration.

For Indians

The *Indian Higher Education Bill of 1955* (H. R. 1591, Metcalf) would authorize the Commissioner of Education to pay high-school graduates with at least three-fourths Indian blood 90 percent of their educational expenses. These scholarships would be available only in States where Indians make up at least 1 percent of the population; and each State would

ALL over America these days, even before school closes, communities and their schools are laying plans for the Nation's observance of American Education Week next November.

They are building their programs on the general theme *Schools for a Strong America*. But they are not forgetting that each day has a theme of its own besides, beginning with Sunday, November 11:

- 11 *Our Spiritual and National Heritage*
- 12 *Today's Education, Tomorrow's Democracy*
- 13 *Schools for Safe and Healthful Living*
- 14 *Schools for Training Manpower*
- 16 *"National Teachers Day"*
- 17 *Schools for a United America*

Any school or group that wants help in planning for the week may get it at nominal cost from the National Education Association, one of the sponsors (other sponsors: American Legion, National Congress of Parents and Teachers, Office of Education). Posters, recordings, a manual, a packet of basic materials—all these and more can be had by writing to *American Education Week, NEA, 1201 16th Street, NW., Washington 6, D. C.*

be limited to 25 scholarships a year.

A similar bill with the same title—H. R. 8484 (Metcalf)—differs primarily in that it would extend eligibility to include persons with as little as one-fourth Indian blood, and would raise the ceiling on number of scholarships per State from 25 to 100.

For Veterans

Two identical bills, one in the House (H. R. 8680, Mrs. Green) and one in the Senate (S. 2962, Neuberger), are entitled *The Veterans' Readjustment Assistance Act of 1956*. They would extend the provision of the Veterans' Readjustment Assistance Act of 1952 until such time as

this country no longer has laws authorizing compulsory military service. The bills would also change the method of paying educational expenses; i. e., the payment would be made not to the veteran but to the institution.

Two bills—H. R. 8691 (Keating) and H. R. 8705 (Radwan)—would extend the educational benefits of the Veterans' Readjustment Act of 1952 to all veterans, regardless of whether they served during a period of war or armed hostilities.

Still another bill applying to veterans is S. 2902 (Payne), which would extend the educational benefits for veterans of World War II for 2 more years.

For Students of Public Health and Nursing

The *Emergency Public Health Training Bill of 1956*—in the House, H. R. 8859 (Thompson); in the Senate, S. 1859 (Humphrey)—would authorize appropriations for three purposes: \$1 million every year for 5 years to provide graduate instruction in public health, \$250,000 for each of 6 years for scholarships for training in public health, and \$1 million a year for 5 years to construct and equip public-health instructional facilities. The scholarships would include tuition, fees, books, equipment, and an amount determined by the Surgeon General of the Public Health Service for maintenance. Special payments would be made to training institutions to encourage them to expand their training facilities.

Another bill directed toward health needs is the *Nurses Training Bill of 1956* (H. R. 9553, Lane). It would give scholarships to nursing trainees to cover tuition, fees, books, uniforms, equipment, and maintenance; the amount would be determined by an agency in each State under a plan approved by the Surgeon General. Financial needs of the applicant would be taken into consideration in making the award. Scholarships would be allotted to each State on the basis of population, with a minimum of \$200,000 to each State.

how some junior high schools identify

the superior pupil

. . . and how they teach him mathematics

THE superior pupil—how do junior high schools determine who he is? And once they have identified him, what can they do for him, particularly in the field of mathematics, to keep his talents from going stale?

Those are the questions that *The Superior Pupil in Junior High School Mathematics** was written to answer. To gather the data on which this bulletin is based, the authors, Earl M. McWilliams, Allerdice High School, Pittsburgh, Pa., and Kenneth E. Brown, Office specialist for mathematics, in 1953-54 visited 140 junior high schools from Maine to California. Dr. McWilliams' participation was made possible by a grant from the Fund for the Advancement of Education.

THE superior pupil, as he is here spoken of, is not necessarily the one who has marked gifts for music, art, or salesmanship, or the one who is accepted as a leader in his age group. Rather he is the rapid learner in academic subjects. By his scores in standardized tests he has shown himself to be one of the "upper 20 percent"; and his abilities lend themselves readily to intellectual pursuits.

Standardized tests, however, are not the only means that the junior high schools use for identifying the superior child, Drs. McWilliams and Brown found.

*Office of Education Bulletin 1955, No. 4. Its 57 pages include a bibliography as well as appendices that reproduce the record forms used by a number of junior high schools in their identification of superior pupils. The bulletin is for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 25 cents a copy.

Most of the schools they visited consult the teacher's opinion, for one thing, although they recognize that the opinion may have been distorted by the pupil's friendliness, obedience, or attractiveness. More than anyone else in a school, the teacher is in a favorable position to observe whether a child shows insight in solving problems; whether he is creative, fluent, or intellectually curious; whether he has an extraordinary memory or is able to apply his knowledge to new situations. Teachers are showing an increased alertness to these signs of superiority; and their opinions, even if not always entirely objective, are especially valuable when they are considered in conjunction with other relevant data.

Many junior high schools use the pupil's cumulative record folder to help them locate the superior child. Into this folder have gone not only his standardized-test scores but such other information as the marks he earned in elementary school, his profile chart, anecdotal records of his behavior, and mention of his hobbies and interests.

The authors point out that many a superior child is difficult to identify. If he is socially maladjusted or emotionally disturbed, for instance, he may not respond to the stimulus of a standardized test or in any other way indicate that he has more than average ability. His readiness to learn may have been delayed. These and other circumstances may so obscure his talents that they will continue to go undiscovered unless special pains are taken. For such a child, some schools have found individual intelligence tests to be helpful in the identification process.

Responsibility for identification belongs to the school administration, the authors say, for the simple reason that a school must know who its superior children are and what their needs are before it can plan for them intelligently.

CERTAINLY the identification process is only the beginning. Once the superior child has been found, efforts should at once be made to improve his education.

What various schools have been doing to develop the superior pupil, Drs. McWilliams and Brown have classified into two broad categories: Classroom provisions, almost entirely the responsibility of the classroom teacher; and organizational provisions, under the control of the principal.

Enriching a course by adding supplemental exercises and problems is one of the ways in which the classroom teacher engages the talents of the superior child. Whether those exercises involve making weather data graphs, experimenting with rats and mazes, constructing such apparatus as probability boards, or collecting statistical facts about the community and interpreting them in mathematical terms, all of them are planned to be thought-provoking and stimulating.

Development of reading skills also is popular as an enrichment device in many schools, as are the study of social and industrial applications of mathematics and the use of pupils as teaching assistants. Other classroom procedures that are proving successful are the subgrouping of pupils into separate classes, individualized instruction, and abundant use of supplementary material.

Organization provisions that the bulletin presents are special schools, special classes for either acceleration or enrichment, and acceleration of the individual child.

All these devices, and others, are here given an evaluative setting. The pros and cons should add value to the bulletin for any school that is developing a program for the superior child.

For the AGING and the AGED

Plans for the Future

COMING up early next month is a Federal-State conference on the aging and the aged and their problems.

The conference, which will be held at the Mayflower Hotel in Washington, D. C., June 4-7, is jointly sponsored by the Federal Council of State Governments and by the Federal Council on Aging, the latter a new interdepartmental organization in Federal Government, established by the President on April 2.

The conference is planned to be not a large national convention in the usual sense of the term, but a small working conference rather—an in-the-family-kind for Federal and State Governments. It is thus limited because it is concerned chiefly with the question of what government can do to make life more productive and satisfying for its senior citizens.

"The recommendations that will be coming out of this conference," says Ambrose Caliver, assistant to the

Commissioner of Education and chief of the Adult Education Section of the Office, "will not be concerned with *what* to do but instead with *how* to do it. Recommendations on *what* to do have already been made in large numbers, by the many meetings and conferences that have been held by various groups and organizations in the past. What we hope to do next month, at the conference, is to find ways in which the Federal and State Governments, working cooperatively, can put those recommendations into effect."

To help make plans for the education section of the conference, Thomas A. Van Sant, a long-time national leader in adult education, has temporarily joined the staff of the Adult Education Section of the Office of Education. He is the director of adult education for the public schools of Baltimore and is serving the Office on a part-time basis until the end of June.

Mr. Van Sant's interest in education of the aging is attested to by the

fact that Baltimore is one of the two or three cities in the United States that recently have added a department for the aging to their public school work in adult education. Thus, when the Office employs Mr. Van Sant, it in a sense also engages the advisory services of Mr. Van Sant's staff on education for the aging, headed by Francis M. Froelicher.

The conference will consist of six panel discussions followed by small discussion groups. Subjects for the panels will be (1) employment, retirement, and restoration; (2) income maintenance; (3) housing and family arrangements; (4) physical and mental health; (5) education and recreation; and (6) organization and functions in the States.

Educational representative on the conference steering committee is the Office's Dr. Caliver. Participating in planning for the conference as a whole is the Department of Health, Education, and Welfare's committee on aging, of which Clark Tibbitts is chairman and Louis H. Ravin, who also is secretary of the new Federal Council on Aging, is associate chairman.

TACKLING THE MANPOWER SHORTAGE

continued from page 6

Office upon request. A similar study will be carried out to get the facts for 1955-56. *The Superior Pupil in Junior High School Mathematics*, by Earl M. McWilliams and Kenneth E. Brown. This publication is summarized on page 13 of this issue.

Several other studies are in the planning stage; others have already been begun.

Dr. Obourn, for example, is now collecting information about the research that has been done in this country in science education; Dr. Brown has done a similar study for mathematics annually since 1952. Both will be reporting their findings and evaluations this summer.

Together, the two are planning a

pilot study this year of the qualifications of teachers of science and mathematics. If this study is carried out and if the results show the need for further investigation, a nationwide study will be made in 1957.

Also for 1957 Dr. Obourn plans an across-the-board study of science education in the public high schools of the United States: it will cover practically all aspects of the subject, including methods, facilities, materials, equipment, and textbooks. A similar study has been conducted in mathematics. The results were published in the two Bulletins—*Mathematics in Public High Schools* (1953) and *Curriculum Materials in Mathematics*

(1954). In future years, Dr. Obourn hopes to carry similar studies into the public junior high and elementary schools.

Consultative and Other Services

Perhaps not so impressive as inter-agency cooperation, or as newsworthy as the publication of research findings, but surely as effective in its impact on the problem, is the day-in-day-out effort of the Office staff to provide useful information to the public.

The specialists compose papers on various aspects of the manpower shortage and present them at meetings of organizations and groups con-

cerned with the problem. They write magazine articles. They prepare bulletins and handbooks, get out bibliographies and other lists.

For instance, there is Dr. Armsby's *Scientific and Professional Manpower: Organized Efforts to Improve Its Supply and Utilization* (Circular No. 394). First published in 1954, it lists the principal agencies—12 non-government and 7 Federal—that were then immediately concerned with the scientific and professional manpower situation (there are more now), describes what each was trying to do about it, and gives an idea of the various agency inter-relations. So useful has it been that a 1956 revision is now being undertaken.

There are Dr. Brown's articles "Mathematics—A Key to Manpower," *School Life*, November 1953, and "Are We Starving Our Potential Scientists?" *Armed Forces Chemical Journal*, December 1955.

There are the *Guide Lines* and the *Guidance Leaflets*, two series of pamphlets prepared by specialists in the Guidance and Student Personnel Section to aid in good manpower utilization by putting both teachers and students in possession of facts that will lead students into wise vocational choices.

There is the bulletin, "Guidance Pamphlet in Mathematics," which the Office staff helped prepare and which was published by the National Council of Teachers of Mathematics. More than 40,000 copies have been sold.

There are Dr. Obourn's Science-Teaching-Service Bulletins, a series just being planned to help teachers in the public schools make their work more effective. Two have already been written—one on the manpower problem itself, the other on what can be done at various levels to solve it.

Nearly every opportunity to address a group gives the Commissioner and his staff an opportunity to reach people who are especially interested in educational problems and who probably are in some position to do

Directory of Higher Education

THIS year's *Directory of Higher Education* (1955-56), published by the Office in March, lists just as many colleges and universities as last year's—1,855—although not all its inclusions are exactly the same, there having been about 20 additions and 20 losses.

To be included in the directory, an institution must offer two or more years beyond high school. Further requirement: it must either be accredited by a nationally recognized accrediting agency, a State department of education, a State university, or be operating under public control. If it meets neither of these requirements it is still included if at least three fully accredited institutions accept its credits as if coming from an accredited institution.

For each institution the directory supplies not only name, location, and names of principal administrative officer but also—with much compactness—the basic facts about accreditation, control, student body, level of offering, and type of program. Five summary tables give an overview of all the institutions from the standpoint of geographical distribution, types of programs, control, and student body.

The 174-page volume, prepared by Theresa Birch Wilkins of the Division of Higher Education, is part 3 of the Office's annual 4-part *Education Directory*. It is available for 50 cents from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

something about them. Among the speeches that have been made on the scientific manpower shortage in the past few months have been the Commissioner's presentation on the problems related to the preparation of science teachers, made to a convention of the American Association for the Advancement of Science at the University of California; Dr. Armsby's addresses on the manpower situation in engineering before the Thomas Alva Edison Foundation Institute in West Orange, N. J., and before the Missouri School of Mines Alumni Association in Washington, D. C.; Dr. Obourn's "Place of the Professional Science Educator in the Manpower

Problem," given in Chicago before a meeting of the National Association for Research in Science Teaching, and his "Facts and Figures on Science Teaching in the Secondary School," before technical personnel of the Du Pont Experiment Station in Wilmington.

The list could go on for pages. There are the hundreds of letters written, the conferences, the committee meetings, the advisory services given to other organizations. All in all, this constant availability of Office of Education staff as a source of information on a national problem may be the greatest contribution the Office can make toward its solution.

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EARNED DEGREES CONFERRED BY HIGHER EDUCATION INSTITUTIONS: 1954-55, by *Mabel C. Rice* and *Neva A. Carlson*, under the general direction of *William A. Jaracz*. 1955. 138 p. \$1. (Cir. No. 461.)

EDUCATION DIRECTORY, 1955-56. PART 1, FEDERAL GOVERNMENT AND STATES, prepared by *Robert F. Will*. 56 p. 25 cents. PART 3, HIGHER EDUCATION, prepared by *Theresa Birch Wilkins*. 1955. 174 p. 50 cents.

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TEACHING AIDS FOR DEVELOPING INTERNATIONAL UNDERSTANDING: INDIA, prepared by *Stella Louise Ferreira*. March 1956. 10 p.

VETERINARY MEDICINE, by *Walter J. Greenleaf*. February 1956. 4 p. (Guidance leaflet.)

(Following publications are available in small quantities from the U. S. Office of Education, Washington 25, D. C.)

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